



California Energy Commission

IEPR Committee Workshop

CALIFORNIA ENERGY DEMAND 2011-2022 PRELIMINARY STAFF FORECAST

August 30, 2011 — 10:00 am

PG&E Planning Area Electricity and Peak Forecast

Demand Analysis Office
Electricity Supply Analysis Division



PG&E Forecast Overview

- 2010 reported consumption was 2% below *CED 2009* forecast
 - Caused by lower commercial and industrial use
- *CED 2011* mid case consumption 2011-2020 growth rate similar to *CED 2009*
- 2010 weather normalized peak was 4% below *CED 2009* forecast
- *CED 2011* mid case peak 2011-2020 growth rate slightly lower than *CED 2009*
- Load factor now projected to be flat (mainly from projected off-peak EV load increase)
- Per capita consumption increases slightly
- Per capita peak remains relatively constant



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PG&E Planning Area Forecast Results

Consumption (GWH)				
	<i>CED 2009 (Dec. 2009)</i>	<i>CED 2011 Preliminary-High</i>	<i>CED 2011 Preliminary-Mid</i>	<i>CED 2011 Preliminary-Low</i>
1990	86,803	86,597	86,597	86,597
2000	101,333	100,969	100,969	100,969
2010	108,344	106,119	106,119	106,119
2011	109,703	107,914	107,369	106,489
2015	115,828	115,634	113,520	111,008
2020	122,414	126,352	120,669	118,820
2022	--	131,191	123,804	121,839
Average Annual Growth Rates				
1990-2000	1.56%	1.55%	1.55%	1.55%
2000-2010	0.67%	0.50%	0.50%	0.50%
2011-2015	1.37%	1.74%	1.40%	1.04%
2011-2020	1.23%	1.77%	1.31%	1.22%
2011-2022	--	1.79%	1.30%	1.23%
Peak (MW)				
	<i>CED 2009 (Dec. 2009)</i>	<i>CED 2011 Preliminary-High</i>	<i>CED 2011 Preliminary-Mid</i>	<i>CED 2011 Preliminary-Low</i>
1990	17,250	17,250	17,250	17,250
2000	20,628	20,628	20,628	20,628
2010	23,479	22,922	22,922	22,922
2011	23,810	23,236	23,151	22,973
2015	25,193	24,779	24,402	23,832
2020	26,877	26,887	25,831	25,334
2022	--	27,729	26,313	25,734
Average Annual Growth Rates				
1990-2000	1.80%	1.80%	1.80%	1.80%
2000-2010	1.30%	1.06%	1.06%	1.06%
2011-2015	1.42%	1.62%	1.32%	0.92%
2011-2020	1.36%	1.63%	1.22%	1.09%
2011-2022	--	1.62%	1.17%	1.04%

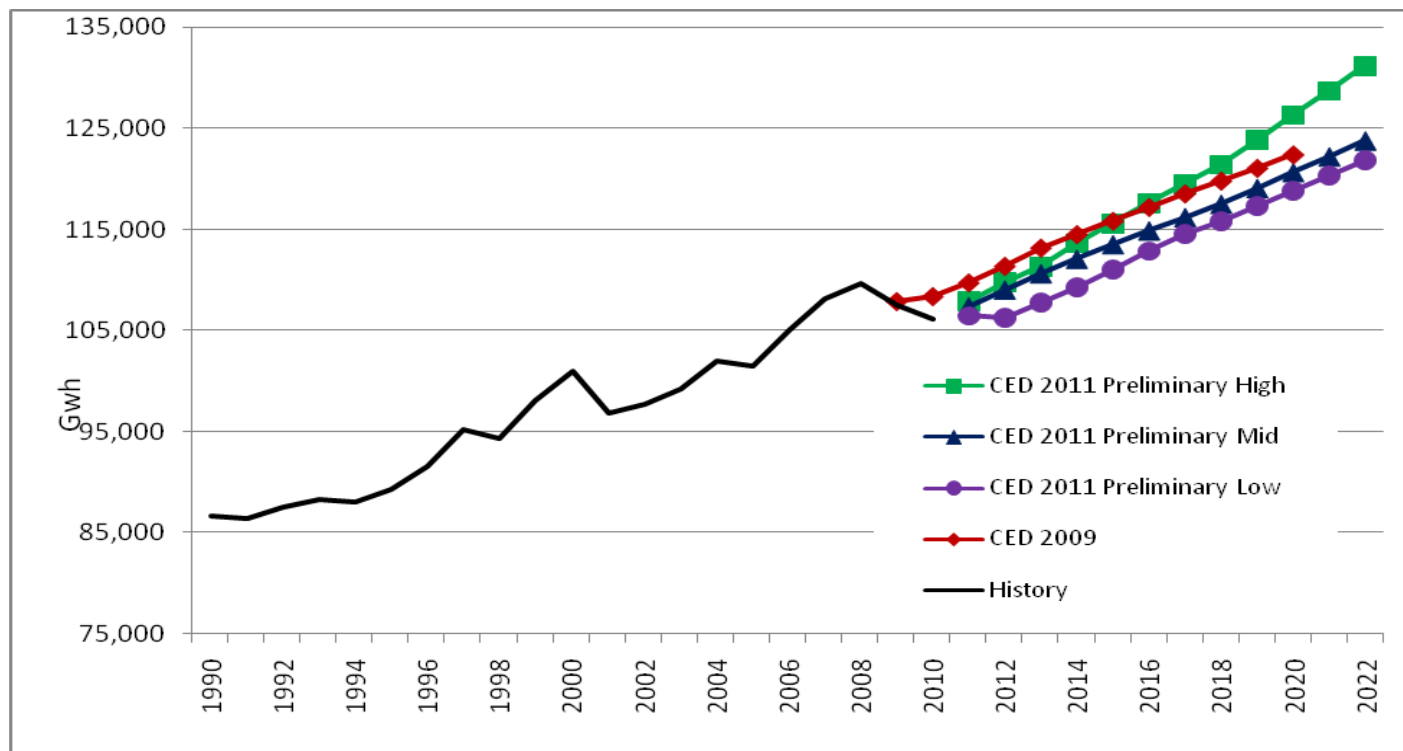
Historical values are shaded



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PG&E Electricity Consumption Forecast

- Lower starting point, similar mid case growth



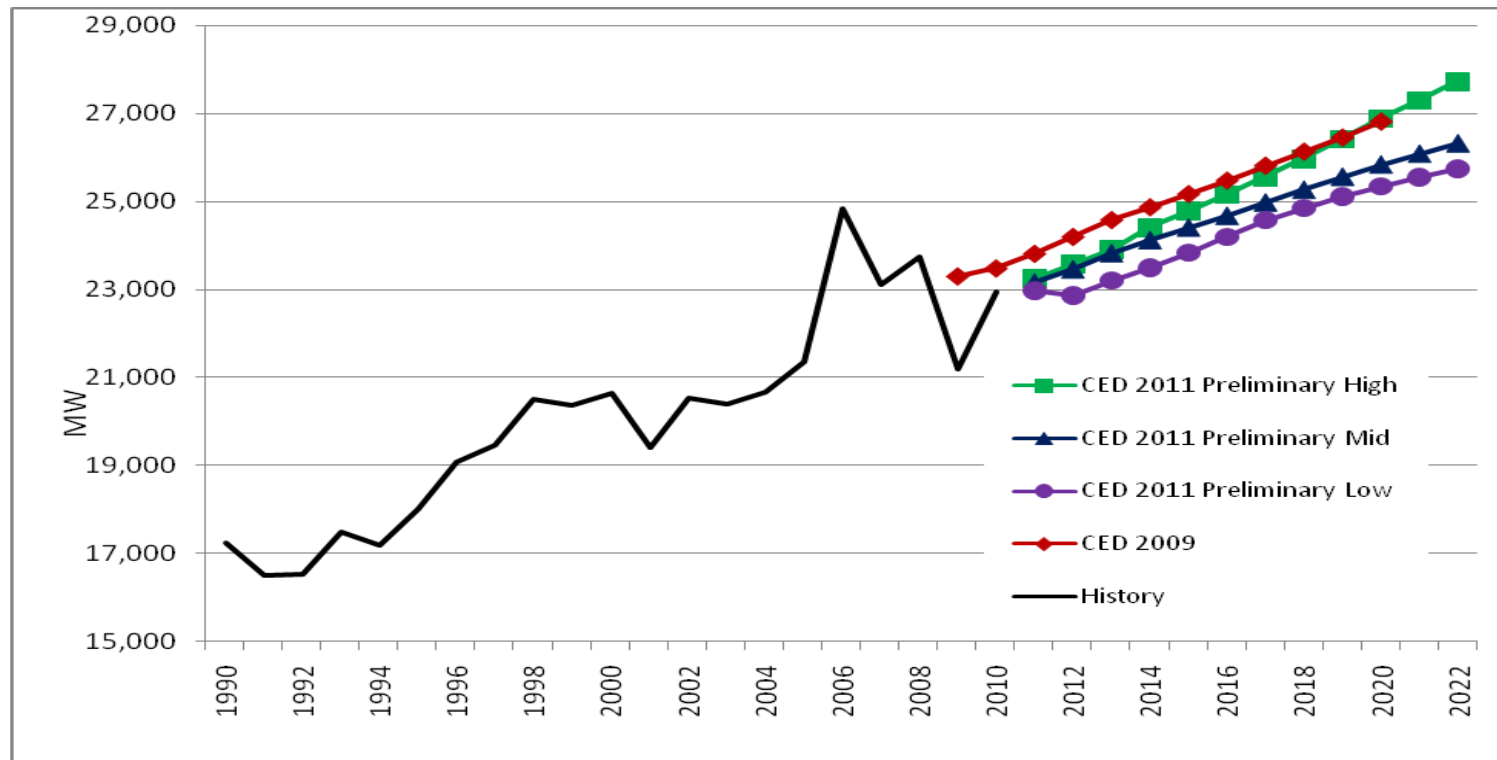
Source: California Energy Commission, 2011



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PG&E Planning Area Peak Forecast

- Lower starting point , similar mid case growth



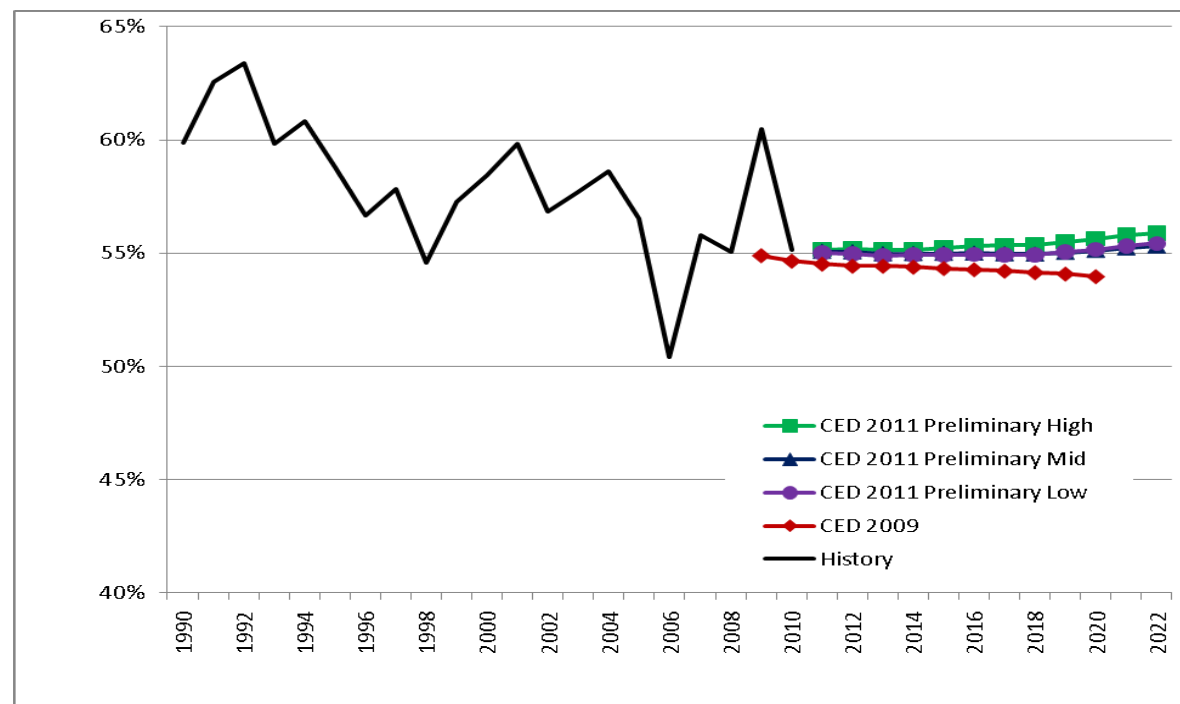
Source: California Energy Commission, 2011



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PG&E Planning Area Load Factor

- Increases at the end of the forecast vehicles from electric vehicles



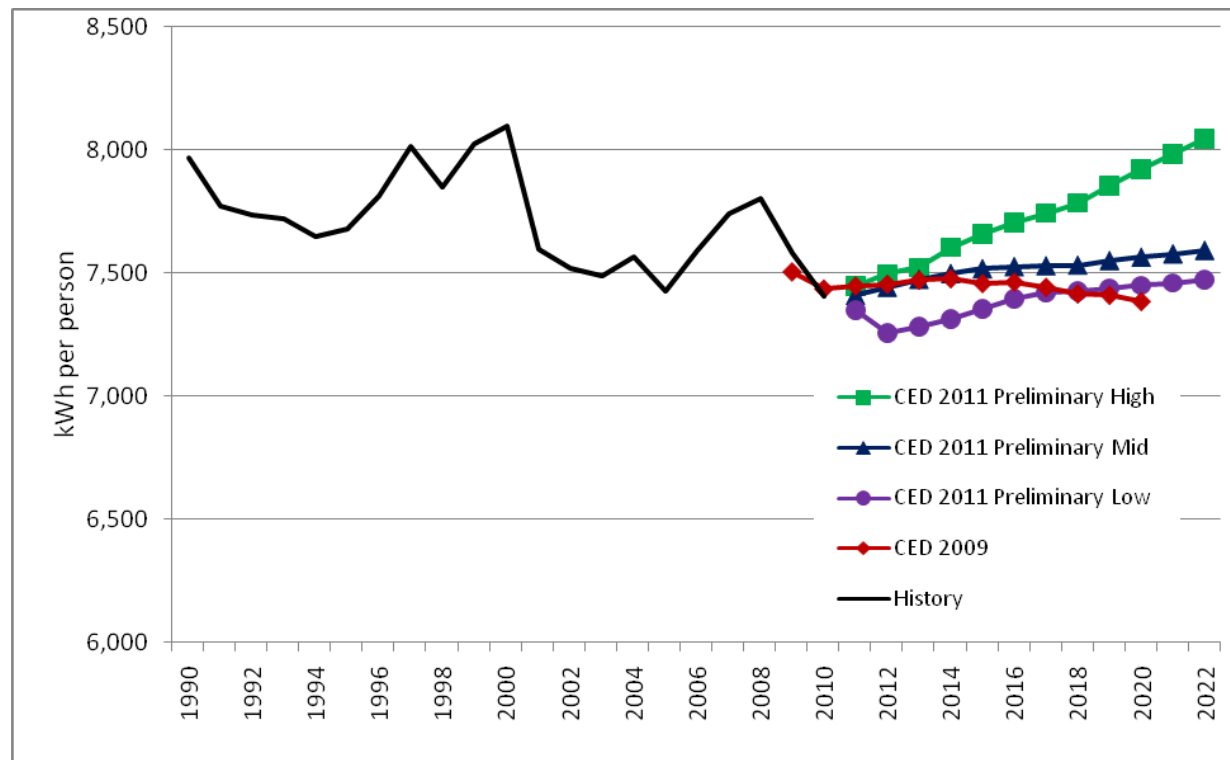
Source: California Energy Commission, 2011



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PG&E per Capita Consumption

- Mid case increases slightly from projected electric vehicle load



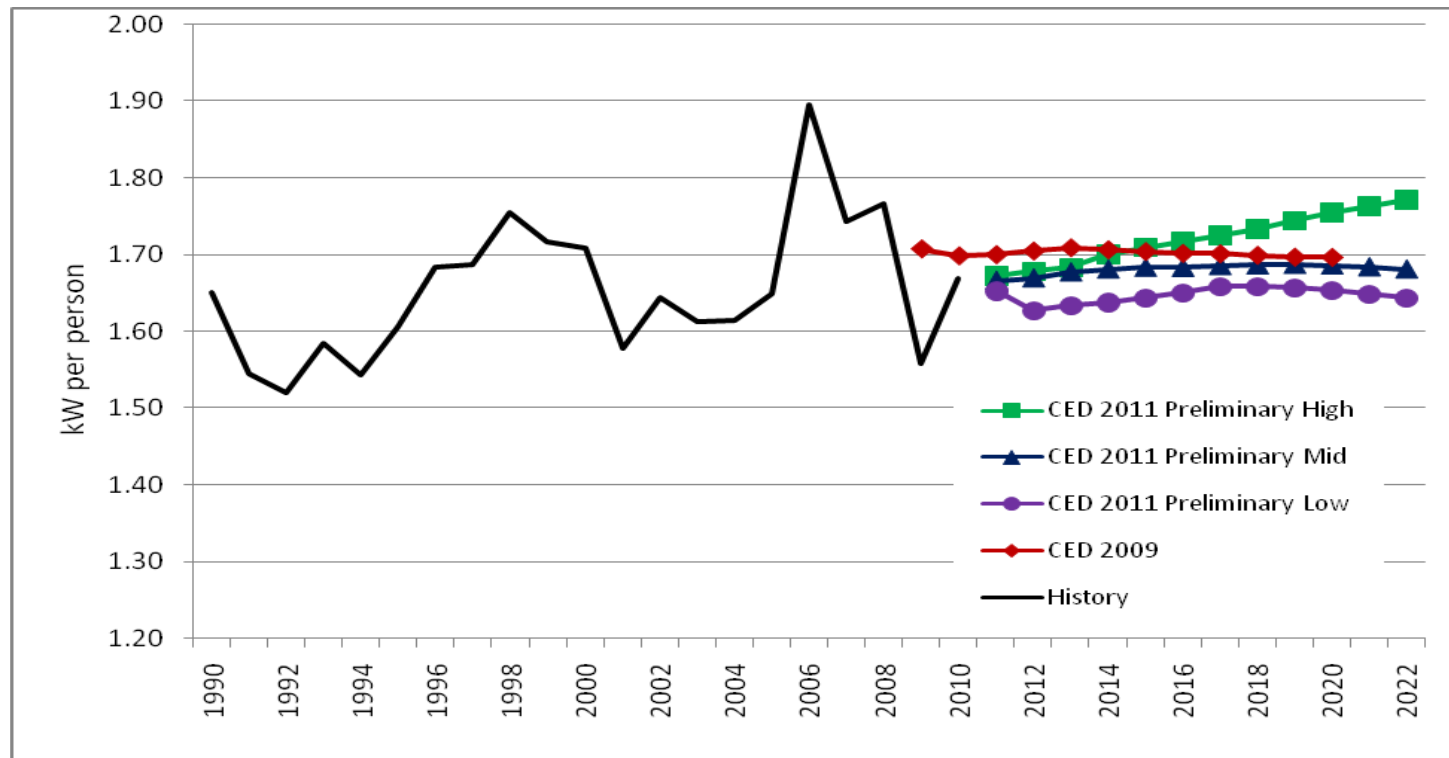
Source: California Energy Commission, 2011



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PG&E per Capita Peak

- Mid case remains constant at lower level than CED 2009



Source: California Energy Commission, 2011



PG&E Residential Forecast

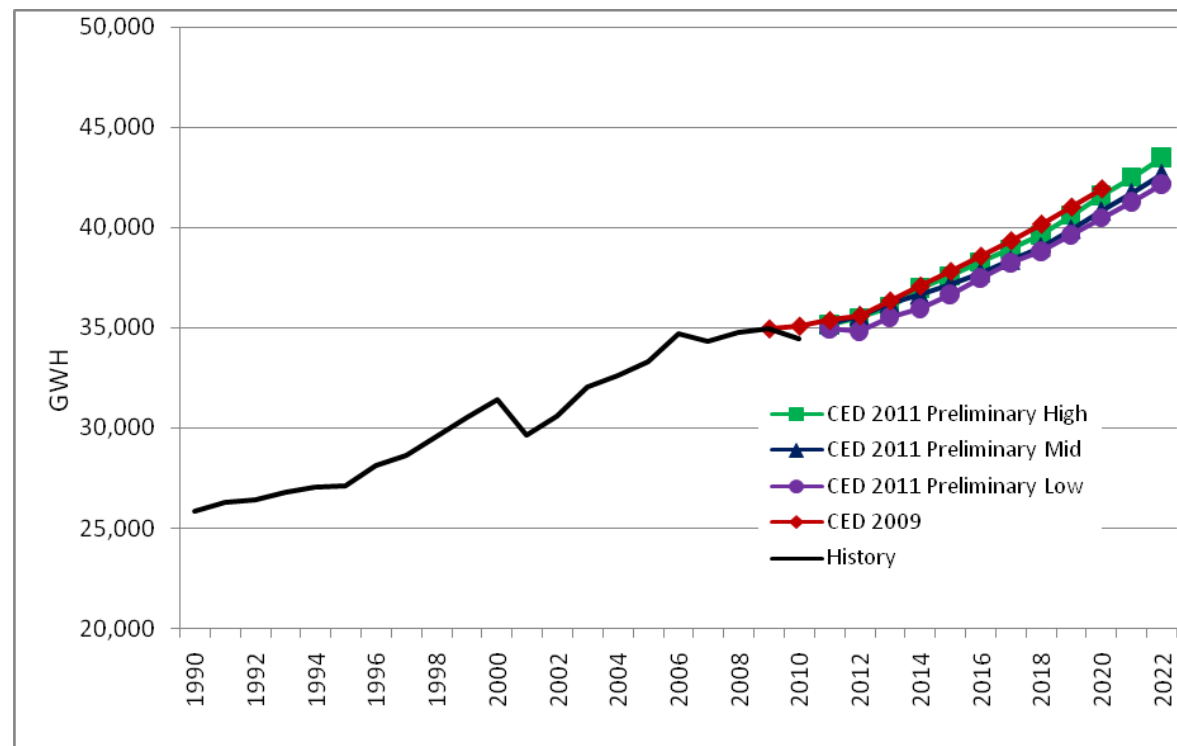
- Slightly lower growth than *CED 2009*
- Fewer households in mid and low cases than *CED 2009*
 - Combination of lower population and revised persons per household forecasts
- Household income (persons per household * per capita income) grows at a faster rate than *CED 2009*
- Use per household increases in the long term from impact of EV's and increased income effects



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PG&E Residential Consumption

- Slightly lower forecast



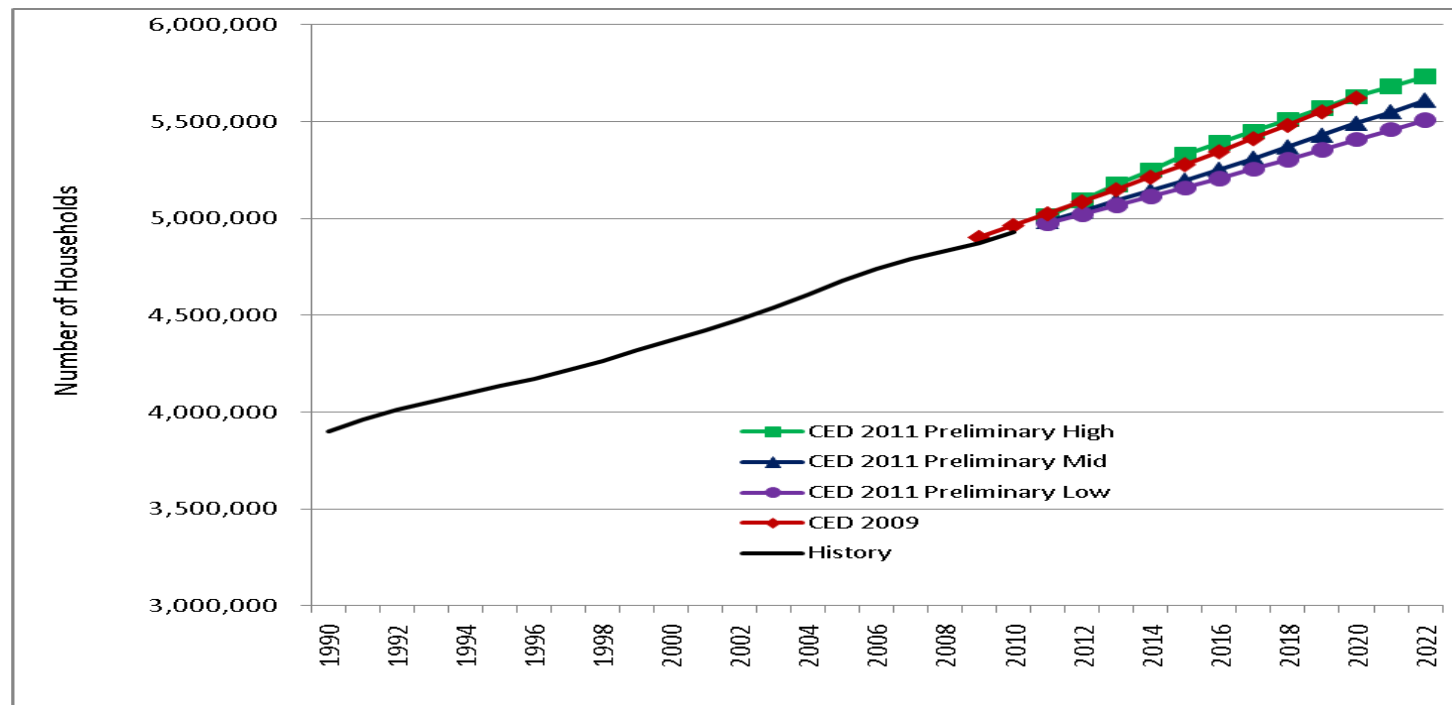
Source: California Energy Commission, 2011



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PG&E Planning Area Household Forecast

- Mid and low cases grow at a lower rate than *CED 2009*



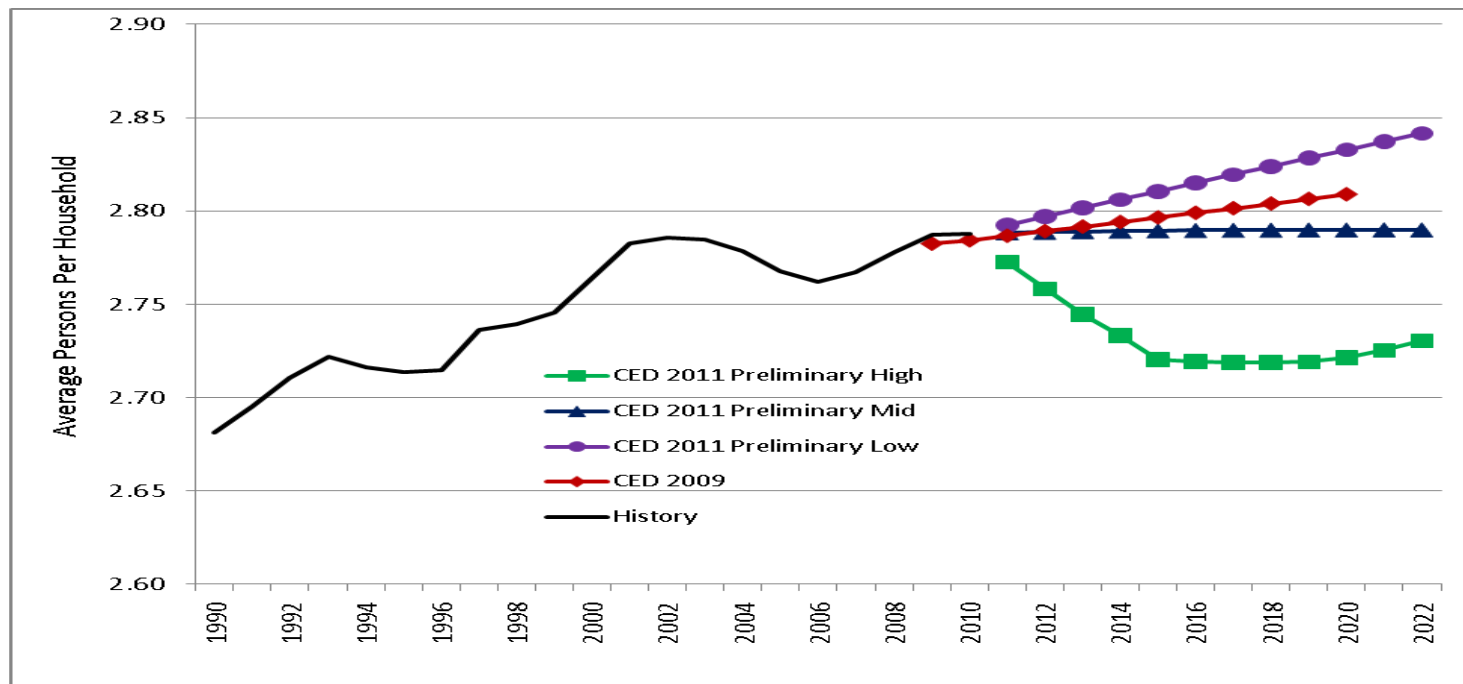
Source: California Energy Commission, 2011



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PG&E Planning Area Persons per Household

- Mid and low scenarios derived historic trend analysis
- High scenario from Economy.com projections



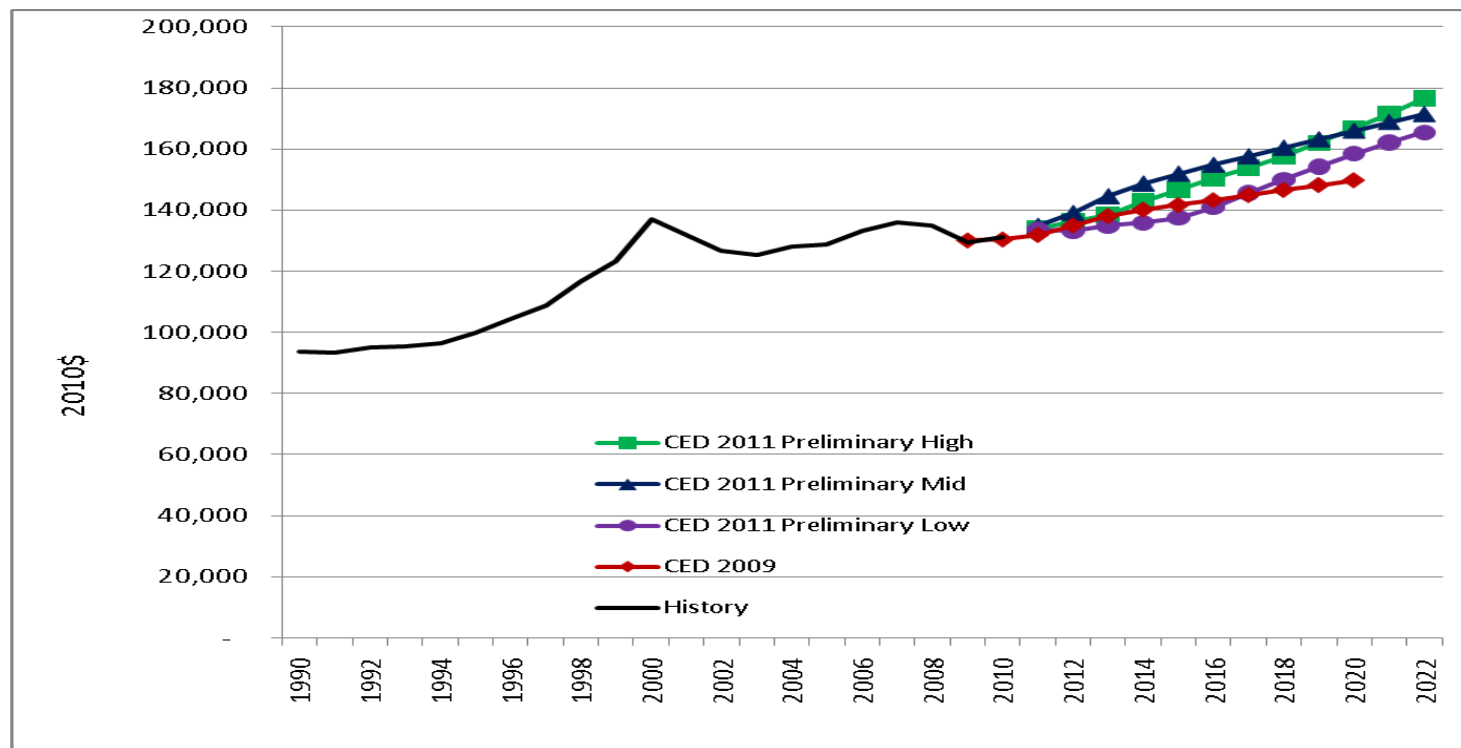
Source: California Energy Commission, 2011



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PG&E Household Income

- Higher income in all scenarios than *CED 2009*
- Mid case is highest because of larger drop in pph in high case



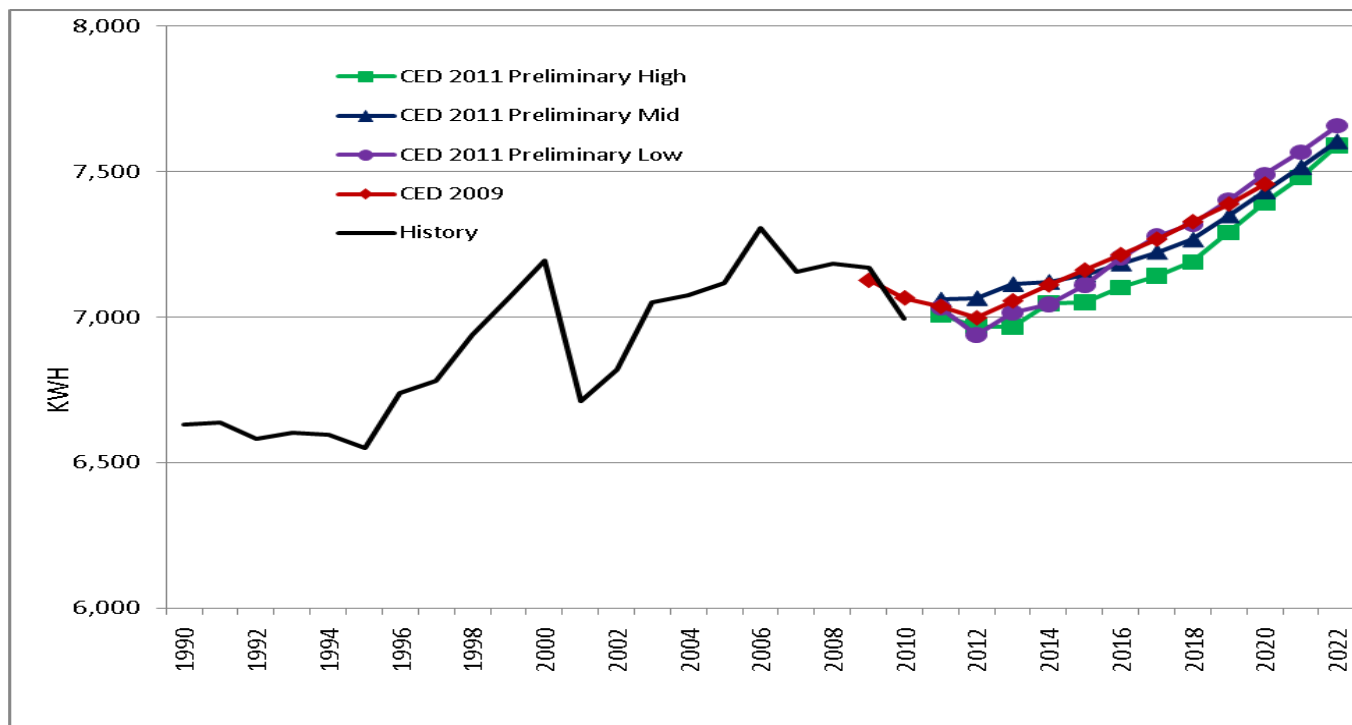
Source: California Energy Commission, 2011



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PG&E Residential Use per Household

- Increase caused by projected EV load and increasing income



Source: California Energy Commission, 2011



PG&E Commercial Building Sector

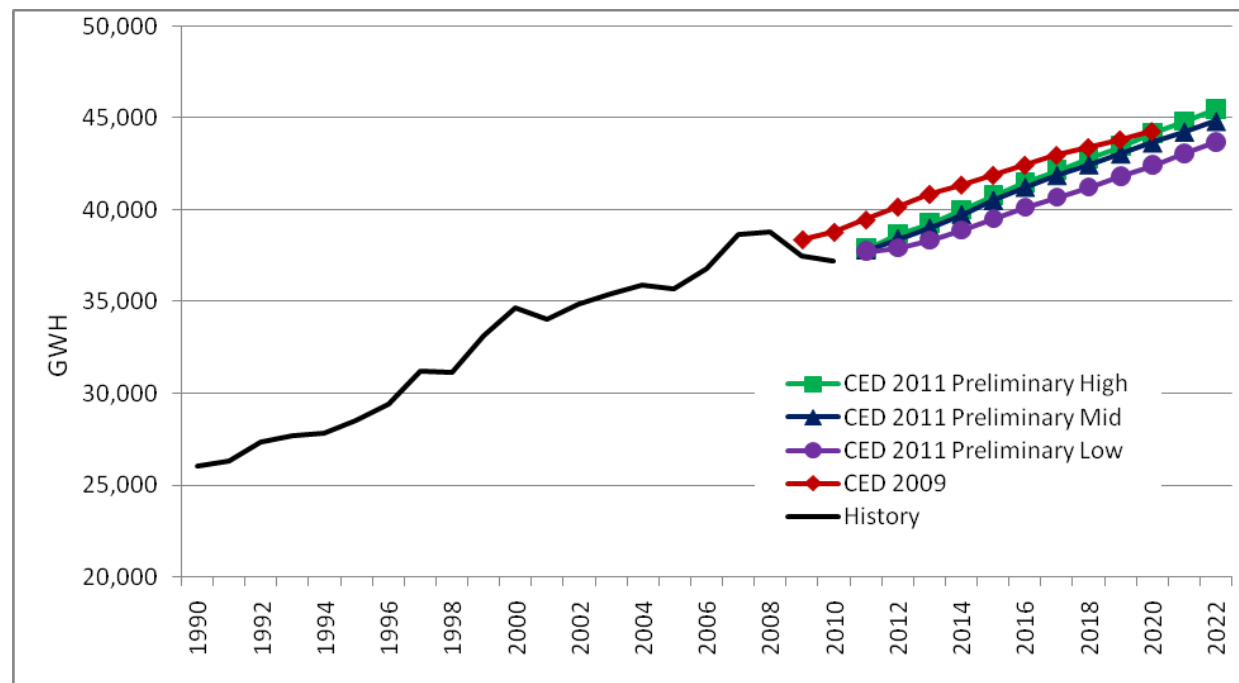
- 2010 consumption was 4% below *CED 2009* projections
- CED 2011 growth rate higher than CED 2009 resulting in a similar 2020 value for mid and high cases
- Floor space projections start from lower point but grow at a faster rate



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PG&E Commercial Building Consumption

- Lower starting point, faster growth



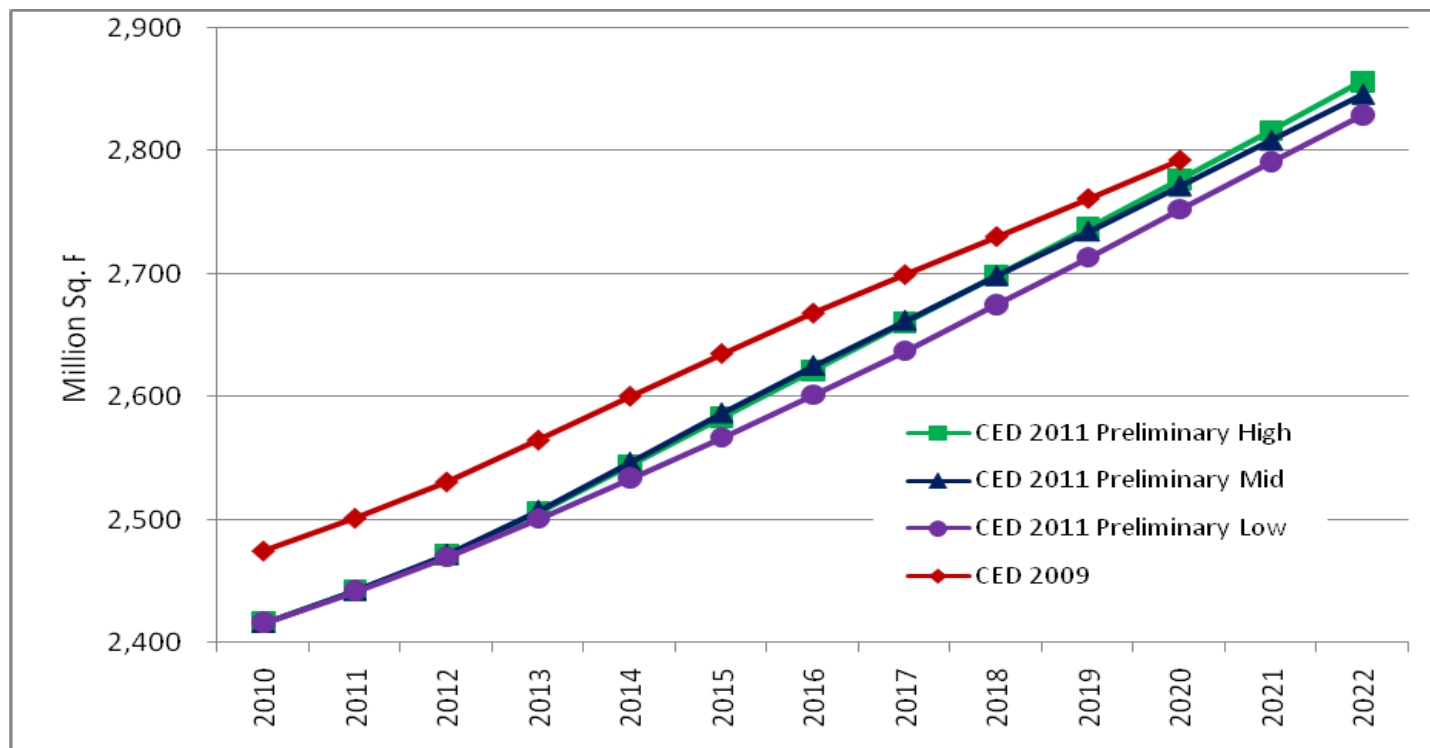
Source: California Energy Commission, 2011



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PG&E Commercial Floor Space

- Lower starting point, faster growth



Source: California Energy Commission, 2011



PG&E Industrial and Mining Sector

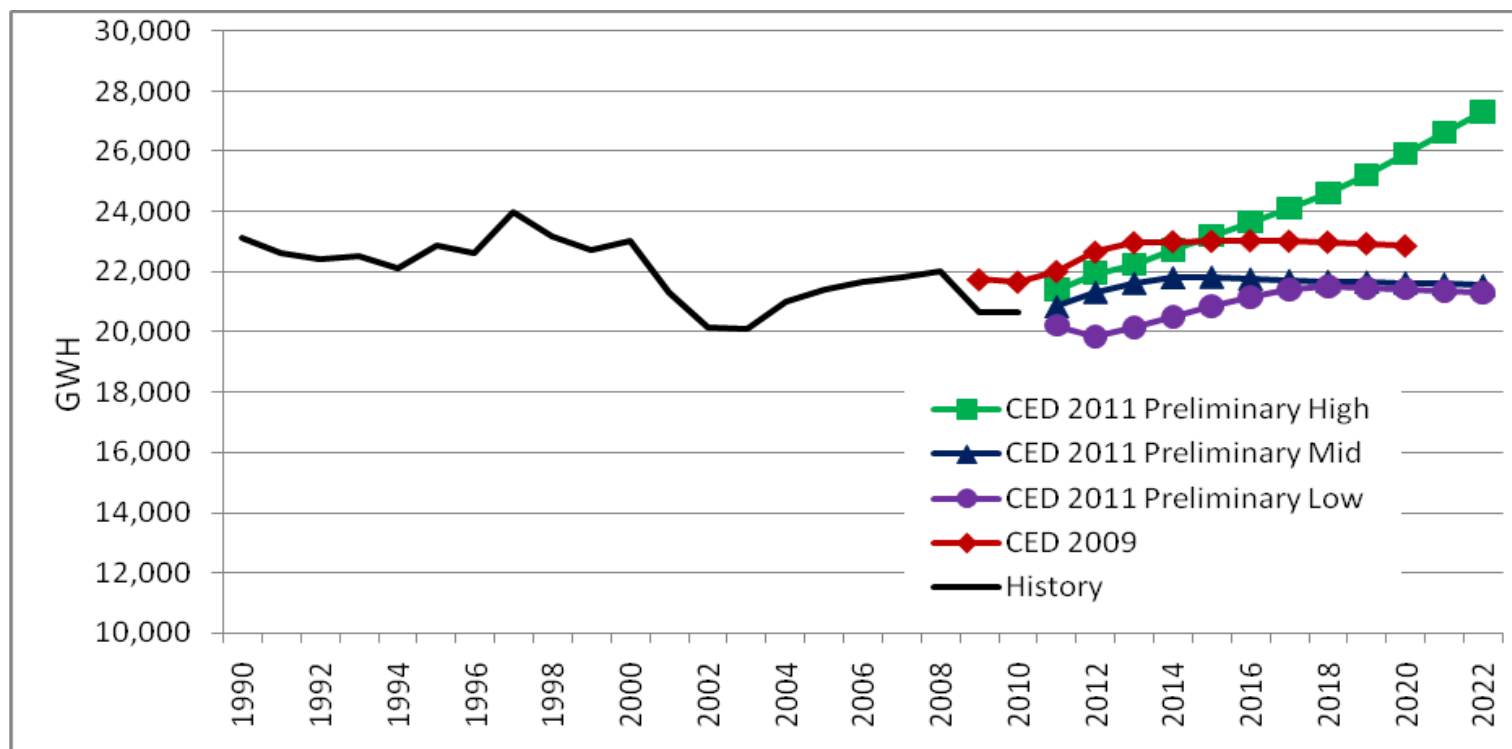
- 2010 consumption was over 4% lower than *CED 2009* forecast
- Mid case growth similar to CED 2009 but starting from a lower level
- Scenario differences driven by difference in output assumptions



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PG&E Industrial and Mining Sector Consumption

- Lower starting point, similar growth to CED 2009 in mid case



Source: California Energy Commission, 2011



PG&E Other Sectors

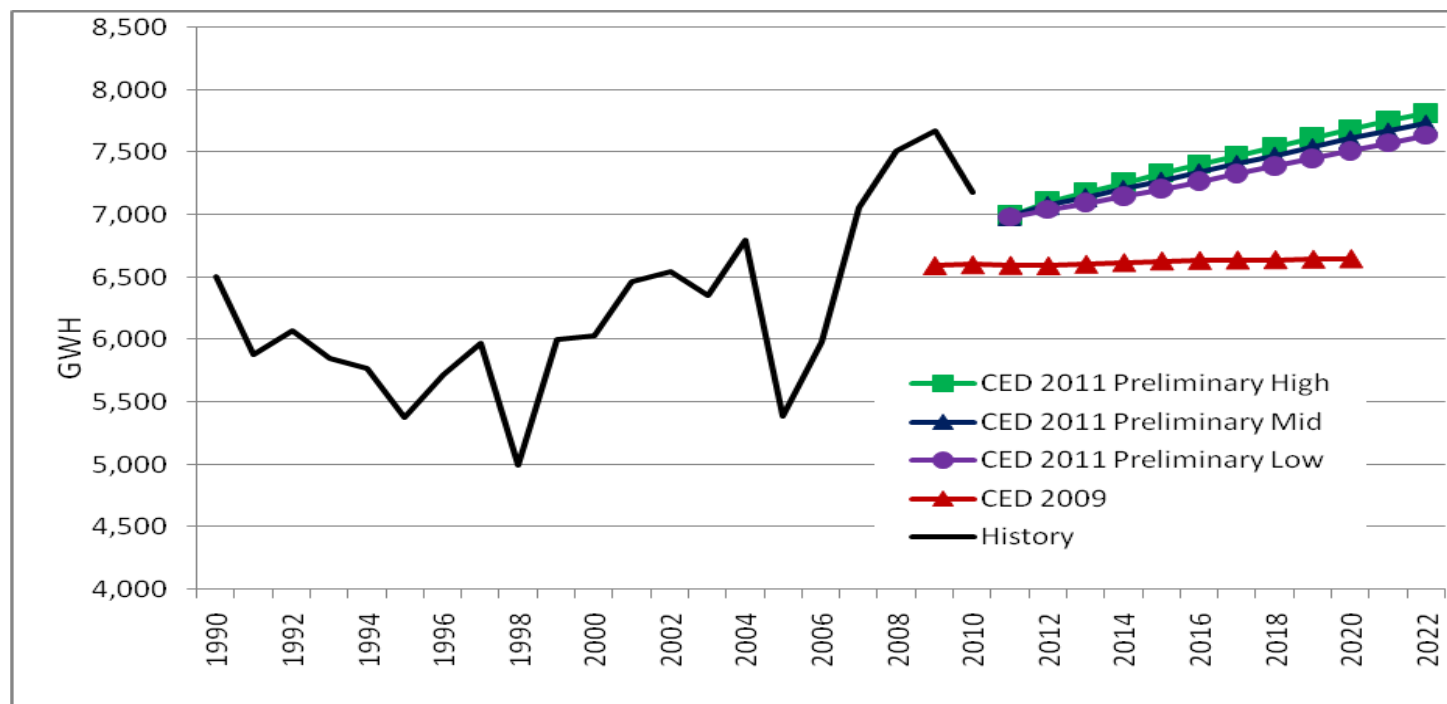
- Remaining sectors comprise 12% of total 2010 consumption:
 - 5% Transportation, communications and utilities (lower starting point)
 - 6% Agriculture and Water Pumping
 - 1% Streetlighting
- Only Ag forecast is significantly different than *CED 2009*
- Electric vehicle use is projected increase total consumption by about 1.7% by 2022



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PG&E Agriculture and Water Pumping Sector Consumption

- Higher starting point, higher growth caused by increased agricultural use



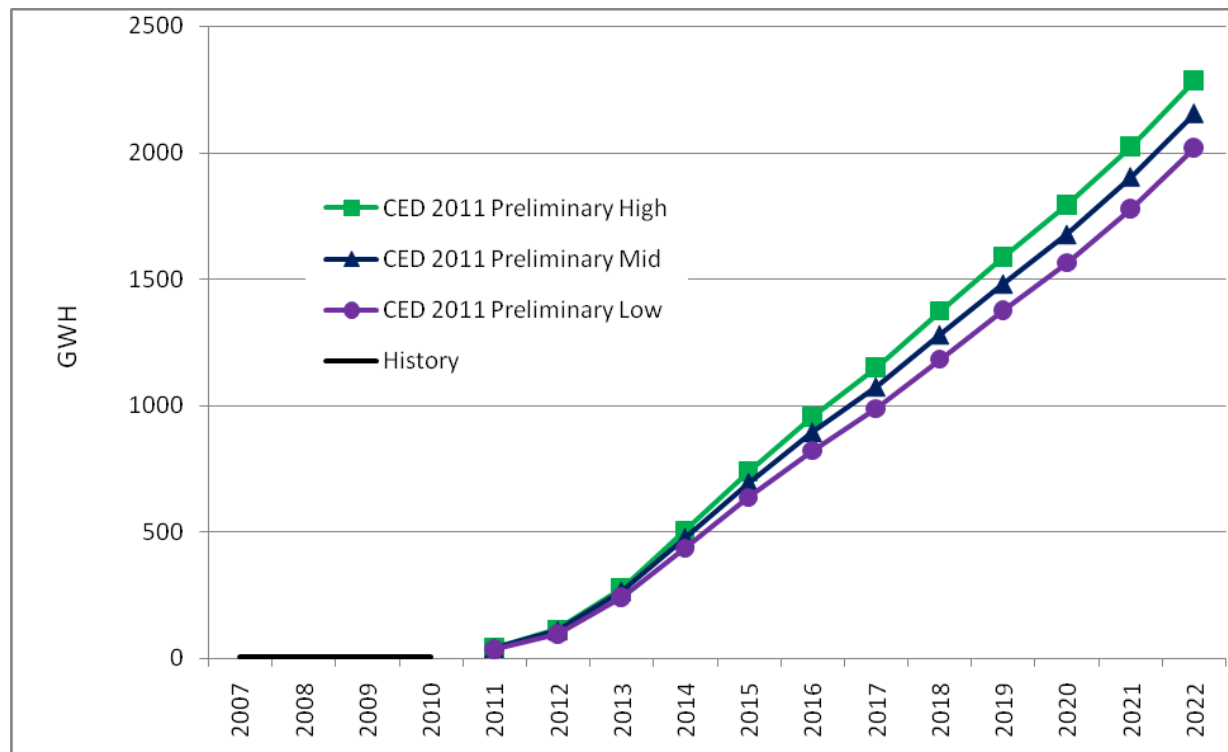
Source: California Energy Commission, 2011



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PG&E Electric Vehicle Forecast

- Peak impacts are projected to be from 90 and 100 MW in 2022



Source: California Energy Commission, 2011



Committed Efficiency Savings and Self Generation

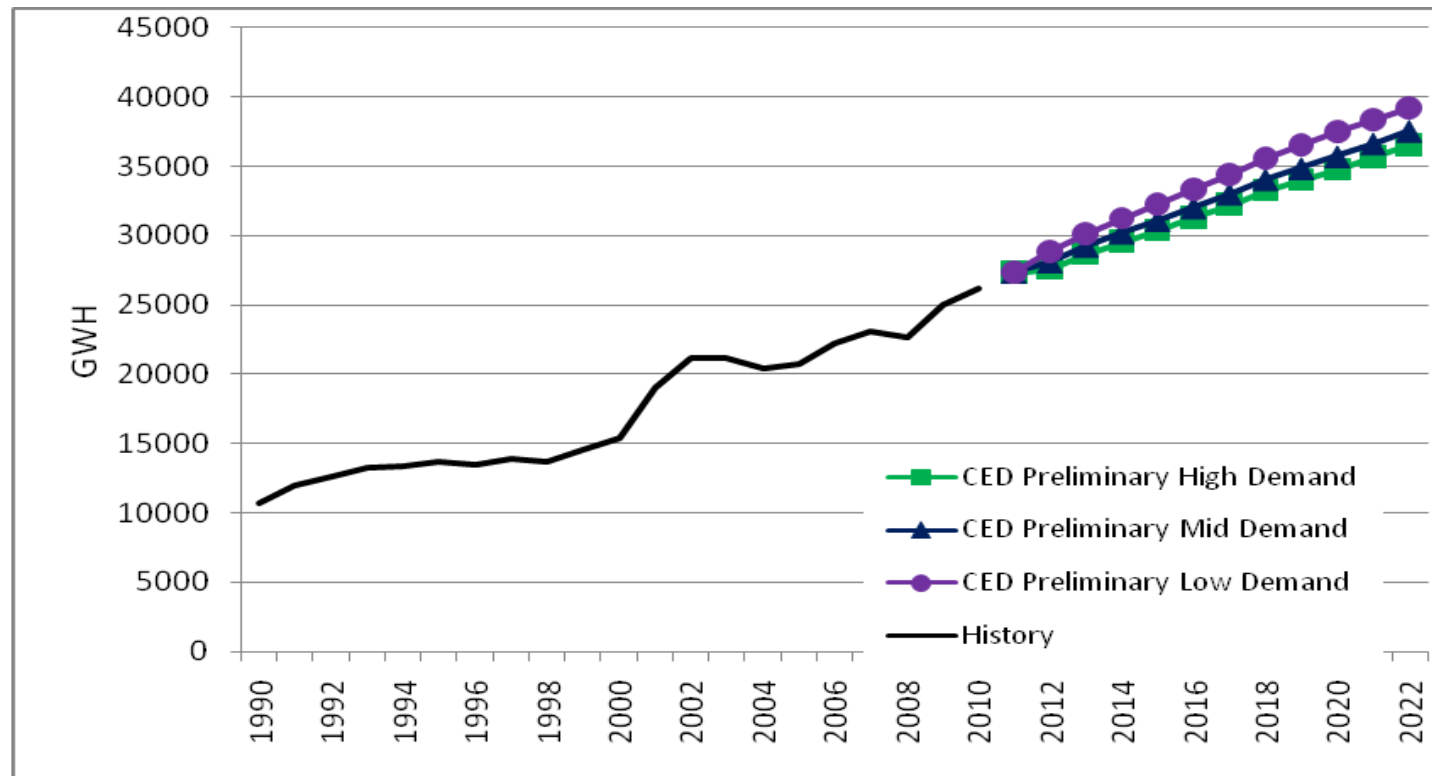
- Committed efficiency savings amount to 30% of consumption and peak by 2022
- 2009-2012 utility program estimates are based on current CPUC filings
- Self generation forecast is based new adoption model



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PG&E Committed Efficiency Savings Estimates

- Results follow historic trend



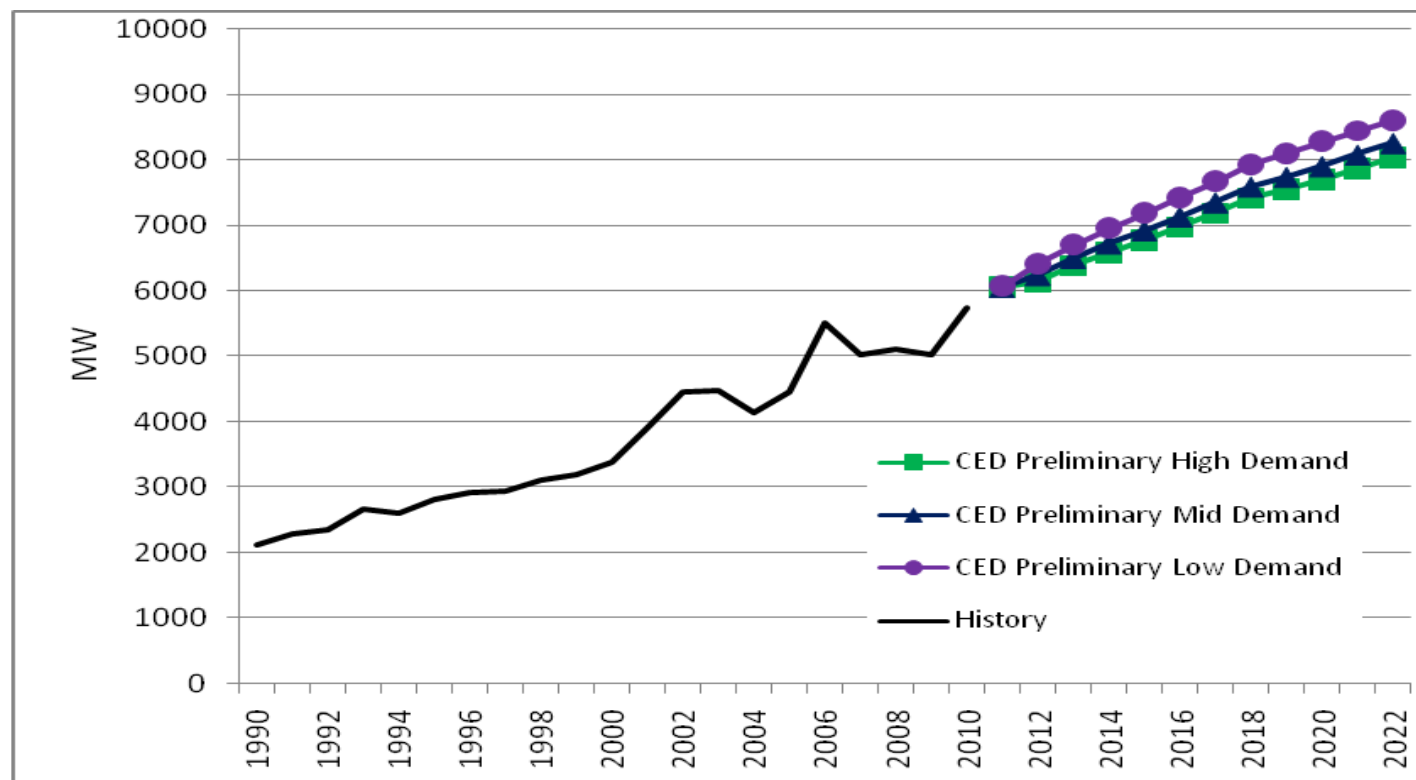
Source: California Energy Commission, 2011



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PG&E Committed Efficiency Peak Savings Estimates

- Results follow historic trend



Source: California Energy Commission, 2011



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PG&E Self Generation Peak Savings Estimates

- Results follow historic trend

	1990	2000	2010	2015	2020	2022
Non-PV Self-Generation	618.09	684.86	677.51	706.29	714.63	725.71
PV, Low case	0.00	0.52	236.23	491.73	690.86	880.54
PV, Mid case	0.00	0.52	236.23	468.44	625.04	788.65
PV, High case	0.00	0.52	236.23	458.99	598.10	741.22
Total Self-Generation, Low case	618.09	685.38	913.74	1198.01	1405.49	1606.26
Total Self-Generation, Mid case	618.09	685.38	913.74	1174.72	1339.67	1514.37
Total Self-Generation, High case	618.09	685.38	913.74	1165.28	1312.73	1466.93

Source: California Energy Commission, 2011



Comparison to PG&E Forecast

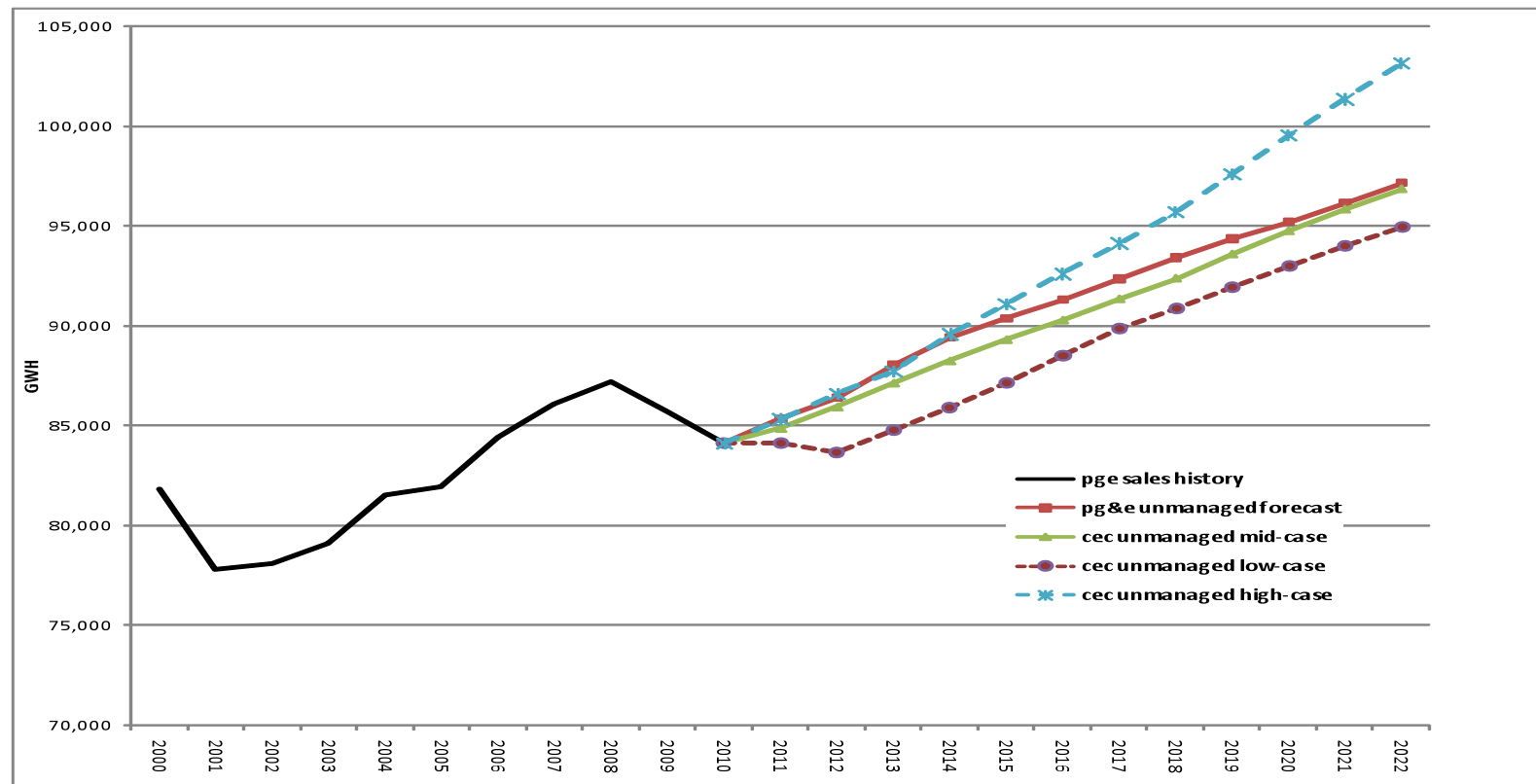
- PG&E unmanaged sales forecast is slightly higher than *CED 2011* mid case for entire period
- CEC managed forecast includes uncommitted program savings estimates for purposes of comparison
- PG&E managed (including uncommitted efficiency) sales forecast similar to *CED 2011* mid case
- PG&E managed residential forecast is higher than all *CED 2011* scenarios
- PG&E unmanaged peak is higher than all *CED 2011* scenarios mainly from short-term peak growth assumptions
- PG&E peaks (managed and unmanaged) are 8% higher in 2022 than *CED 2011* mid case



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PG&E Unmanaged Forecast Comparison

- PG&E slightly above CEC mid case



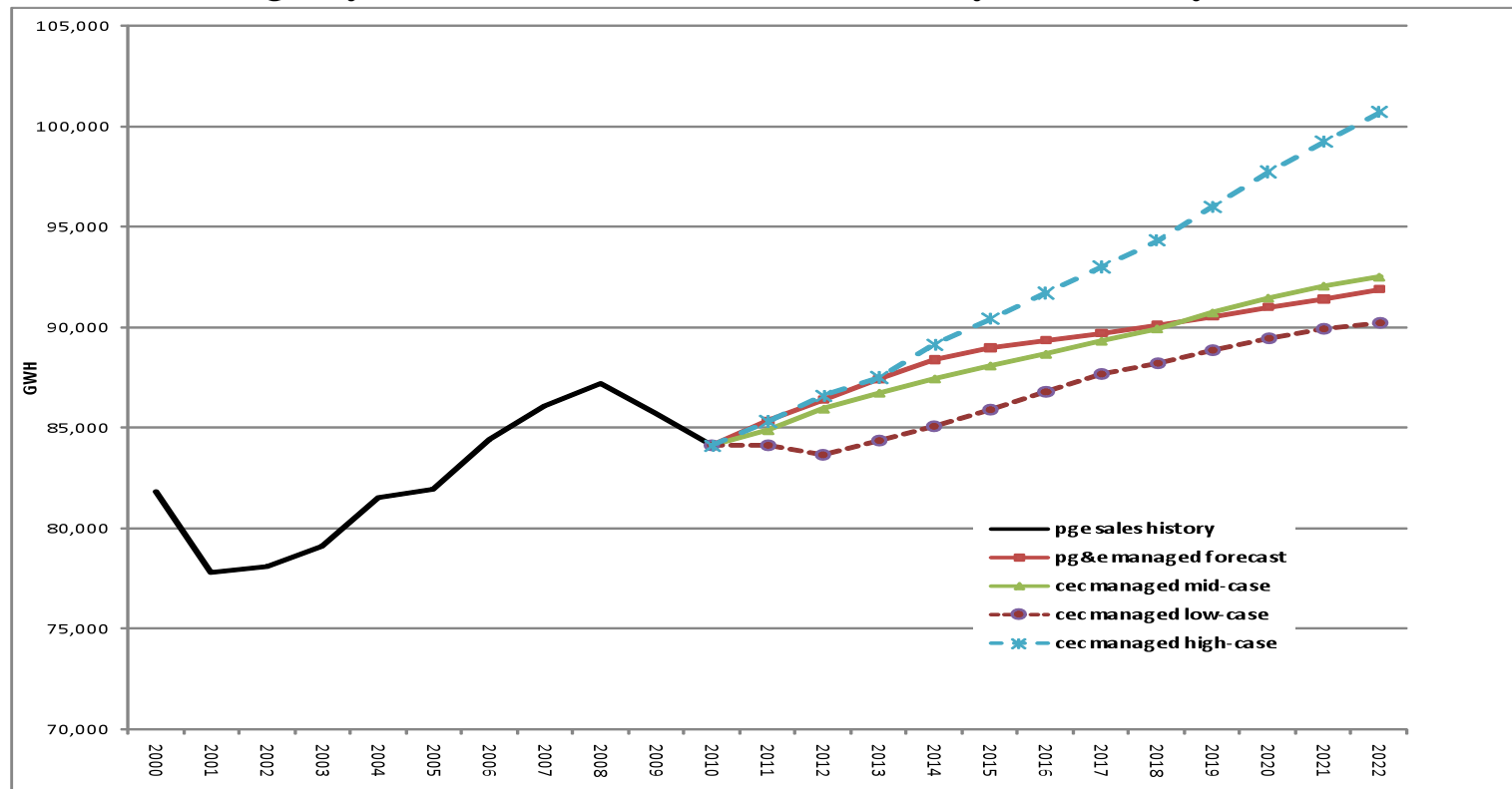
Source: California Energy Commission, 2011



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PG&E Managed Forecast Comparison

- PG&E slightly above CEC mid case in early forecast years



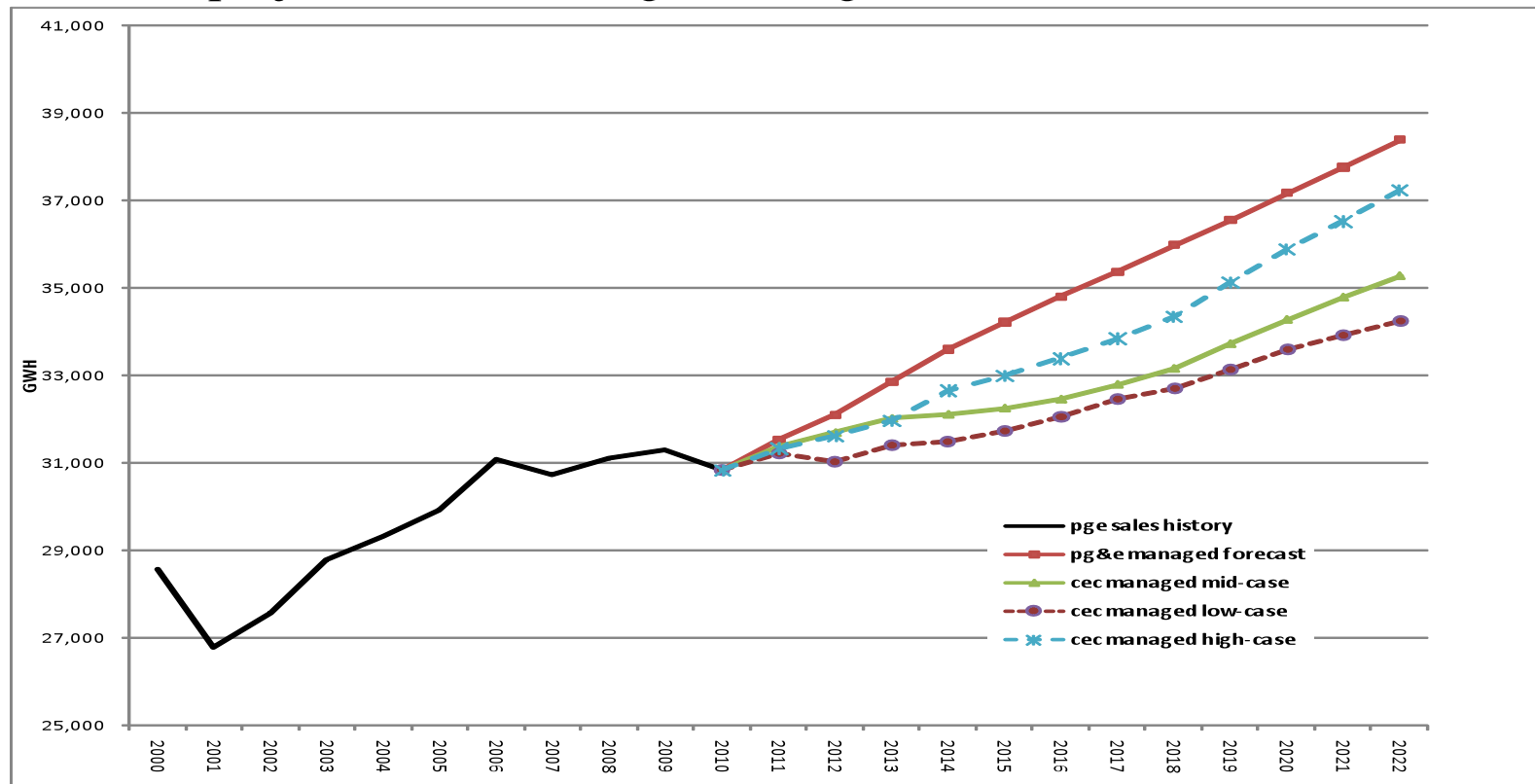
Source: California Energy Commission, 2011



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PG&E Managed Residential Forecast Comparison

- PG&E projected residential growth higher than all CEC forecasts



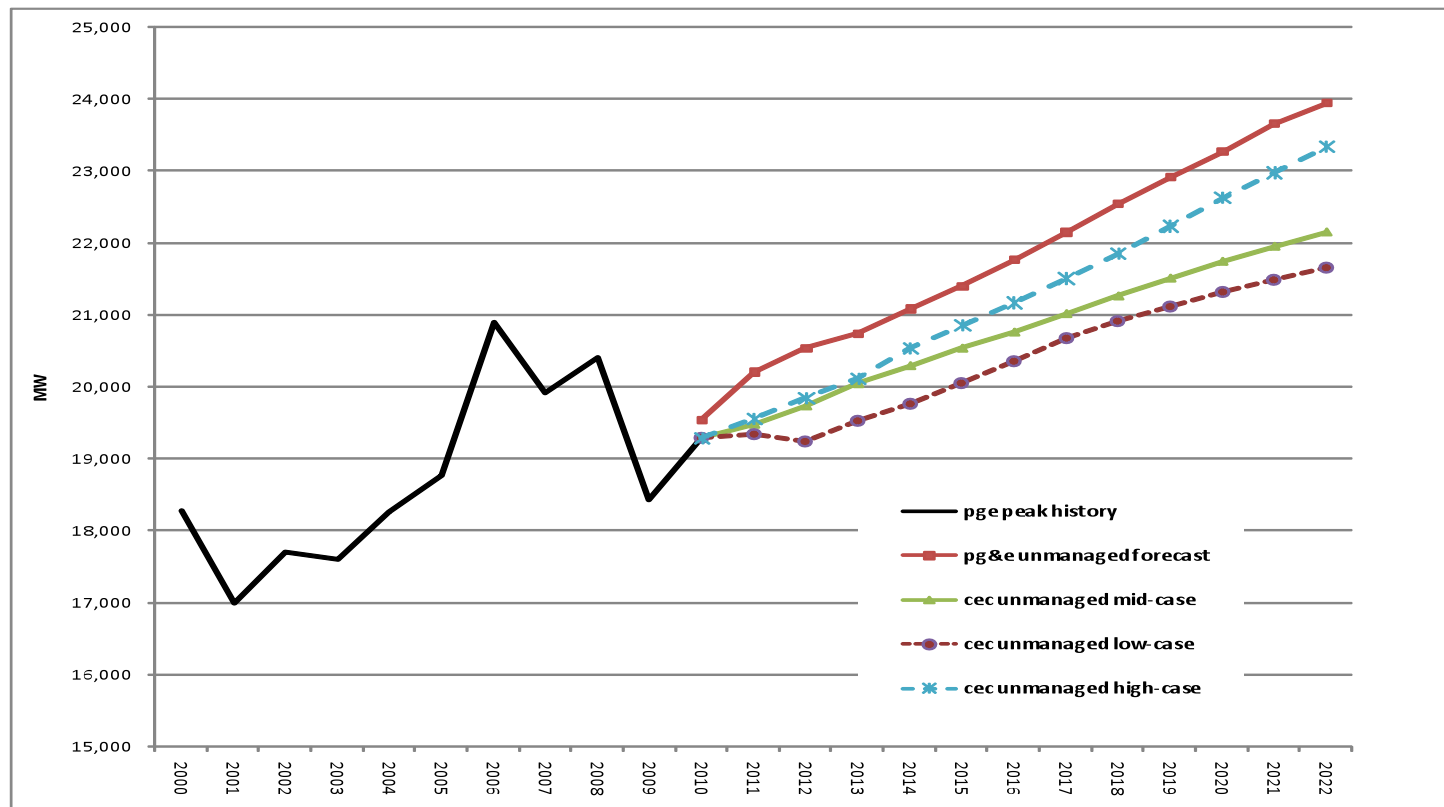
Source: California Energy Commission, 2011



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PG&E Unmanaged Peak Forecast Comparison

- PG&E forecast higher than all CEC cases



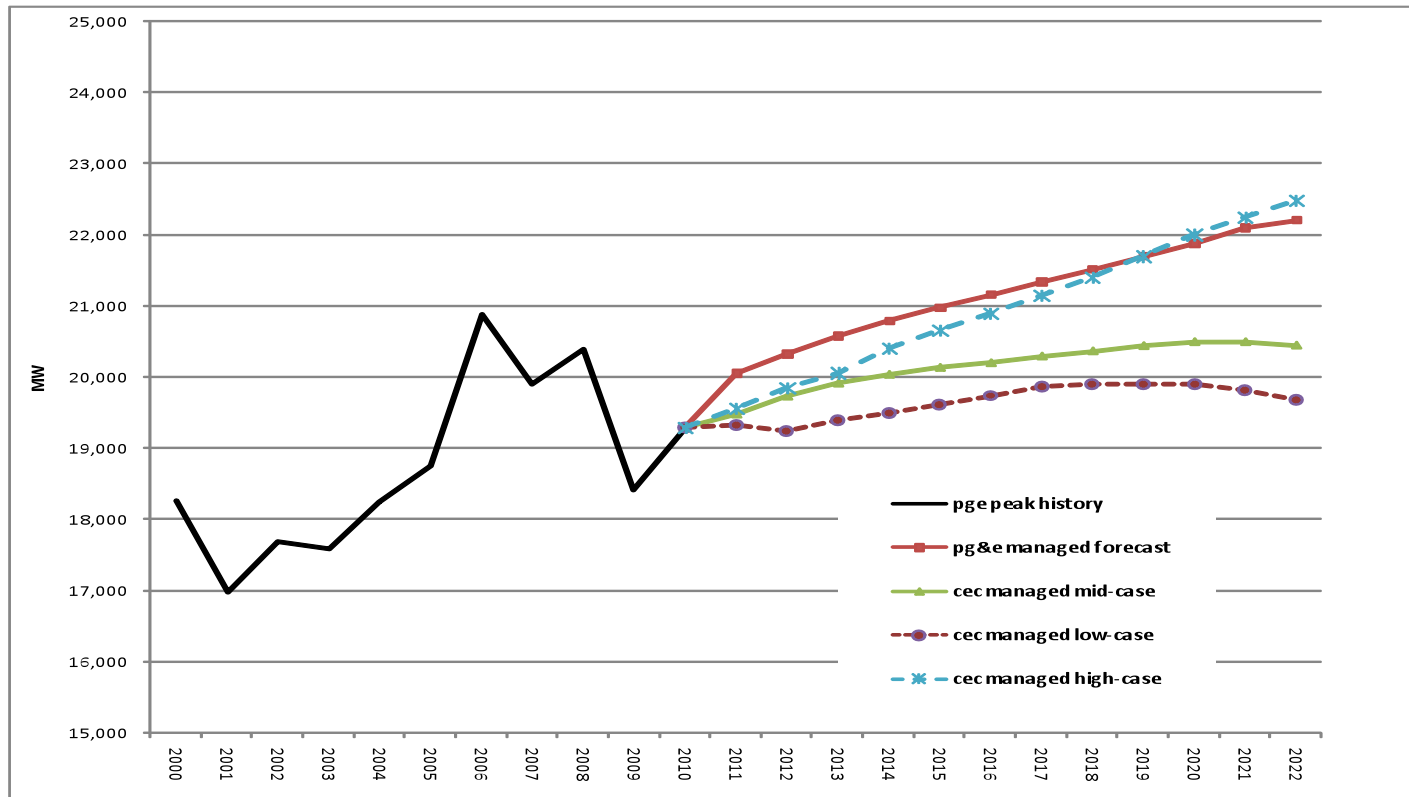
Source: California Energy Commission, 2011



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PG&E Managed Peak Forecast Comparison

- PG&E growth beyond 2011 only slightly higher than CEC mid case



Source: California Energy Commission, 2011